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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,571	08/27/2003	Christopher Oriakhi	200300745-1	8233

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EXAMINER

BALDWIN, GORDON

ART UNIT PAPER NUMBER

1775

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/650,571

Applicant(s)

ORIAKHI ET AL.

Examiner

Gordon R. Baldwin

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1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 20-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Sherwood (Pub. No. 2003/0114936).**

**Consider claims 20, 21, 22, 23 and 25,** Sherwood teaches solid three dimensional structures (abstract) that can be formed by a three-dimensional ink-jet process where the particles maybe made of one or more ceramic or other inorganic substances such as hydroxyapatite and other calcium phosphates(para.136), in addition to the particles also being polymers. (Para. 73) Sherwood also teaches the use of a binder, specifically poly acrylic acid (PAA), which is capable of binding powder particles together and to other solid regions, which can be contained in an aqueous solution. (Para. 84) Additionally, it is taught that it is also possible, in the case where powder particles are polymers, to use a liquid binder which is itself a solvent for the solid, which will effect partial fusion of the particles to each other by partial dissolution of particles followed by resolidification (hardening). In this instance, chloroform is used as the aqueous liquid (Para. 84)

Sherwood also teaches in paragraph 118 that, the carrier liquid of the suspension, and the binder substance or substances for the three dimension printing process (if binding is achieved by a binder substance as opposed to dissolution/resolidifcation), may be chosen so that the binder substance or substances are not excessively soluble in the slurry carrier liquid. This assures that deposition of

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suspension for subsequent layers may be performed without appreciably affecting the binding of already-printed layers. For example, the binder substance may be polyacrylic acid and the suspension carrier liquid may be isopropanol or water. (the combination of these is considered to be a low molecular weight polymer solvated)

**Claims 20-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Barlow (Pub. No. 20010005797).**

**Consider claims 20, 22, 23 and 25,** Barlow teaches the making of three-dimensional geometric shapes by fusing layers of calcium phosphate mixed with polymer binders. (abstract and claim 25) The structure is formed by using a binder coated calcium phosphate powders, whereby dissolving the polymer (considered to include methyl methacrylate (Para. 79)) in a suitable organic solvent (aqueous liquid) (considered to include water (Para. 77), which is also considered to give a low molecular weight polymer) and then depositing the solution on the surface of the particulate, then evaporating the solvent (hardening). (Para. 68)

The calcium phosphate is considered to include hydroxyapatite. (Para. 66) Additionally, the structure is considered to retain its form upon drying because Barlow states that the process of fabrication of these bone geometries is complex and that that process allows an accurate copy of the complex bone structure, which would not be possible if the composition did not retain its size and form upon drying. (Para. 75)

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***Allowable Subject Matter***

**Claim 24** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

  
JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER  
10/16/06